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Sequence Listing was accepted.

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217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2009; month=10; day=23; hr=12; min=42; sec=44; ms=929;  
]

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Application No: 10673098

Version No: 2.0

Input Set:

Output Set:

Started: 2009-10-06 16:41:26.276

Finished: 2009-10-06 16:41:35.823

Elapsed: 0 hr(s) 0 min(s) 9 sec(s) 547 ms

Total Warnings: 124

Total Errors: 0

No. of SeqIDs Defined: 212

Actual SeqID Count: 212

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
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W 213	Artificial or Unknown found in <213> in SEQ ID (9)
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W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)
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W 213	Artificial or Unknown found in <213> in SEQ ID (16)
W 213	Artificial or Unknown found in <213> in SEQ ID (17)
W 213	Artificial or Unknown found in <213> in SEQ ID (18)
W 213	Artificial or Unknown found in <213> in SEQ ID (29)
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W 213	Artificial or Unknown found in <213> in SEQ ID (33)
W 213	Artificial or Unknown found in <213> in SEQ ID (34)
W 213	Artificial or Unknown found in <213> in SEQ ID (35)

**Input Set:**

**Output Set:**

**Started:** 2009-10-06 16:41:26.276  
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**No. of SeqIDs Defined:** 212  
**Actual SeqID Count:** 212

Error code	Error Description
	This error has occurred more than 20 times, will not be displayed
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W 402	Undefined organism found in <213> in SEQ ID (84)
W 402	Undefined organism found in <213> in SEQ ID (96)
W 402	Undefined organism found in <213> in SEQ ID (97)
W 402	Undefined organism found in <213> in SEQ ID (102)
W 402	Undefined organism found in <213> in SEQ ID (117)
W 402	Undefined organism found in <213> in SEQ ID (118)
W 402	Undefined organism found in <213> in SEQ ID (119)
W 402	Undefined organism found in <213> in SEQ ID (120)
W 402	Undefined organism found in <213> in SEQ ID (121)
W 402	Undefined organism found in <213> in SEQ ID (122)
W 402	Undefined organism found in <213> in SEQ ID (123)
W 402	Undefined organism found in <213> in SEQ ID (124)
W 402	Undefined organism found in <213> in SEQ ID (125)
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W 402	Undefined organism found in <213> in SEQ ID (130)
W 402	Undefined organism found in <213> in SEQ ID (131)
	This error has occurred more than 20 times, will not be displayed



# SEQUENCE LISTING

<110> O'Donnell, Michael E.  
Yurieva, Olga

<120> ENZYMES DERIVED FROM THERMOPHILIC ORGANISMS THAT  
FUNCTION AS A CHROMOSOMAL REPLICASE, PREPARATION AND  
USE THEREOF

<130> 22221/1030

<140> 10673098

<141> 2003-09-26

<150> 09/716,964

<151> 2000-11-21

<150> 09/642,218

<151> 2000-08-18

<150> 09/057,416

<151> 1998-04-08

<150> 60/143,202

<151> 1997-04-08

<160> 212

<170> PatentIn Ver. 2.1

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<211> 2007

<212> DNA

<213> Thermus thermophilus

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<211> 529

<212> PRT

<213> *Thermus thermophilus*

<400> 2

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Gly Arg Leu Ala Gln Ala Tyr Leu Phe Ser Gly Pro Arg Gly Val Gly  
 35 40 45

Lys Thr Thr Thr Ala Arg Leu Leu Ala Met Ala Val Gly Cys Gln Gly  
 50 55 60

Glu Asp Pro Pro Cys Gly Val Cys Pro His Cys Gln Ala Val Gln Arg  
 65 70 75 80

Gly Ala His Pro Asp Val Val Asp Ile Asp Ala Ala Ser Asn Asn Ser  
 85 90 95

Val Glu Asp Val Arg Glu Leu Arg Glu Arg Ile His Leu Ala Pro Leu  
 100 105 110

Ser Ala Pro Arg Lys Val Phe Ile Leu Asp Glu Ala His Met Leu Ser  
 115 120 125

Lys Ser Ala Phe Asn Ala Leu Leu Lys Thr Leu Glu Glu Pro Pro Pro  
 130 135 140

His Val Leu Phe Val Phe Ala Thr Thr Glu Pro Glu Arg Met Pro Pro  
 145 150 155 160

Thr Ile Leu Ser Arg Thr Gln His Phe Arg Phe Arg Arg Leu Thr Glu  
 165 170 175

Glu Glu Ile Ala Phe Lys Leu Arg Arg Ile Leu Glu Ala Val Gly Arg  
 180 185 190

Glu	Ala	Glu	Glu	Glu	Ala	Leu	Leu	Leu	Leu	Ala	Arg	Leu	Ala	Asp	Gly	195	200	205
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Gly	Pro	Leu	Thr	Arg	Lys	Glu	Val	Glu	Arg	Ala	Leu	Gly	Ser	Pro	Pro	225	230	235 240
Gly	Thr	Gly	Val	Ala	Glu	Ile	Ala	Ala	Ser	Leu	Ala	Arg	Gly	Lys	Thr	245	250	255
Ala	Glu	Ala	Leu	Gly	Leu	Ala	Arg	Arg	Leu	Tyr	Gly	Glu	Gly	Tyr	Ala	260	265	270
Pro	Arg	Ser	Leu	Val	Ser	Gly	Leu	Leu	Glu	Val	Phe	Arg	Glu	Gly	Leu	275	280	285
Tyr	Ala	Ala	Phe	Gly	Leu	Ala	Gly	Thr	Pro	Leu	Pro	Ala	Pro	Pro	Gln	290	295	300
Ala	Leu	Ile	Ala	Ala	Met	Thr	Ala	Leu	Asp	Glu	Ala	Met	Glu	Arg	Leu	305	310	315 320
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Ser	Pro	Glu	Val	Gly	Pro	Lys	Pro	Glu	Ser	Pro	Pro	Thr	Pro	Glu	Pro	355	360	365
Pro	Arg	Pro	Glu	Glu	Ala	Pro	Asp	Leu	Arg	Glu	Arg	Trp	Arg	Ala	Phe	370	375	380
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Pro	Glu	Val	Arg	Glu	Gly	Gln	Leu	Cys	Leu	Ala	Phe	Pro	Glu	Asp	Lys	405	410	415
Ala	Phe	His	Tyr	Arg	Lys	Ala	Ser	Glu	Gln	Lys	Val	Arg	Leu	Leu	Pro	420	425	430
Leu	Ala	Gln	Ala	His	Phe	Gly	Val	Glu	Glu	Val	Val	Leu	Val	Leu	Glu	435	440	445
Gly	Glu	Lys	Lys	Ser	Leu	Ser	Pro	Arg	Pro	Arg	Pro	Ala	Pro	Pro	Pro	450	455	460
Glu	Ala	Pro	Ala	Pro	Pro	Gly	Pro	Pro	Glu	Glu	Glu	Val	Glu	Ala	Glu	465	470	475 480
Glu	Ala	Ala	Glu	Glu	Ala	Pro	Glu	Glu	Ala	Leu	Arg	Arg	Val	Val	Arg	485	490	495

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<211> 1590

<212> DNA

<213> *Thermus thermophilus*

<400> 3

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<211> 464

<212> PRT

<213> *Thermus thermophilus*

<400> 4

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Gly	Ala	His	Pro	Asp	Val	Val	Asp	Ile	Asp	Ala	Ala	Ser	Asn	Asn	Ser	
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Ser	Ala	Pro	Arg	Lys	Val	Phe	Ile	Leu	Asp	Glu	Ala	His	Met	Leu	Ser	
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His	Val	Leu	Phe	Val	Phe	Ala	Thr	Thr	Glu	Pro	Glu	Arg	Met	Pro	Pro	
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Thr	Ile	Leu	Ser	Arg	Thr	Gln	His	Phe	Arg	Phe	Arg	Arg	Leu	Thr	Glu	
				165					170					175		
Glu	Glu	Ile	Ala	Phe	Lys	Leu	Arg	Arg	Ile	Leu	Glu	Ala	Val	Gly	Arg	
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Glu	Ala	Glu	Glu	Glu	Ala	Leu	Leu	Leu	Leu	Ala	Arg	Leu	Ala	Asp	Gly	
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Gly	Thr	Gly	Val	Ala	Glu	Ile	Ala	Ala	Ser	Leu	Ala	Arg	Gly	Lys	Thr	
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Ala	Glu	Ala	Leu	Gly	Leu	Ala	Arg	Arg	Leu	Tyr	Gly	Glu	Gly	Tyr	Ala	
		260					265					270				
Pro	Arg	Ser	Leu	Val	Ser	Gly	Leu	Leu	Glu	Val	Phe	Arg	Glu	Gly	Leu	
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Tyr	Ala	Ala	Phe	Gly	Leu	Ala	Gly	Thr	Pro	Leu	Pro	Ala	Pro	Pro	Gln	
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 Ser Pro Glu Val Gly Pro Lys Pro Glu Ser Pro Pro Thr Pro Glu Pro  
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 Pro Arg Pro Glu Glu Ala Pro Asp Leu Arg Glu Arg Trp Arg Ala Phe  
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 Leu Glu Ala Leu Arg Pro Thr Leu Arg Ala Phe Val Arg Glu Ala Arg  
 385 390 395 400  
 Pro Glu Val Arg Glu Gly Gln Leu Cys Leu Ala Phe Pro Glu Asp Lys  
 405 410 415  
 Ala Phe His Tyr Arg Lys Ala Ser Glu Gln Lys Val Arg Leu Leu Pro  
 420 425 430  
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<211> 454

<212> PRT

<213> *Thermus thermophilus*

<400> 5

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 Gly Arg Leu Ala Gln Ala Tyr Leu Phe Ser Gly Pro Arg Gly Val Gly  
 35 40 45  
 Lys Thr Thr Thr Ala Arg Leu Leu Ala Met Ala Val Gly Cys Gln Gly  
 50 55 60  
 Glu Asp Pro Pro Cys Gly Val Cys Pro His Cys Gln Ala Val Gln Arg  
 65 70 75 80  
 Gly Ala His Pro Asp Val Val Asp Ile Asp Ala Ala Ser Asn Asn Ser  
 85 90 95  
 Val Glu Asp Val Arg Glu Leu Arg Glu Arg Ile His Leu Ala Pro Leu  
 100 105 110  
 Ser Ala Pro Arg Lys Val Phe Ile Leu Asp Glu Ala His Met Leu Ser  
 115 120 125

Lys Ser Ala Phe Asn Ala Leu Leu Lys Thr Leu Glu Glu Pro Pro Pro  
 130 135 140

His Val Leu Phe Val Phe Ala Thr Thr Glu Pro Glu Arg Met Pro Pro  
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Thr Ile Leu Ser Arg Thr Gln His Phe Arg Phe Arg Arg Leu Thr Glu  
 165 170 175

Glu Glu Ile Ala Phe Lys Leu Arg Arg Ile Leu Glu Ala Val Gly Arg  
 180 185 190

Glu Ala Glu Glu Glu Ala Leu Leu Leu Leu Ala Arg Leu Ala Asp Gly  
 195 200 205

Ala Leu Arg Asp Ala Glu Ser Leu Leu Glu Arg Phe Leu Leu Leu Glu  
 210 215 220

Gly Pro Leu Thr Arg Lys Glu Val Glu Arg Ala Leu Gly Ser Pro Pro  
 225 230 235 240

Gly Thr Gly Val Ala Glu Ile Ala Ala Ser Leu Ala Arg Gly Lys Thr  
 245 250 255

Ala Glu Ala Leu Gly Leu Ala Arg Arg Leu Tyr Gly Glu Gly Tyr Ala  
 260 265 270

Pro Arg Ser Leu Val Ser Gly Leu Leu Glu Val Phe Arg Glu Gly Leu  
 275 280 285

Tyr Ala Ala Phe Gly Leu Ala Gly Thr Pro Leu Pro Ala Pro Pro Gln  
 290 295 300

Ala Leu Ile Ala Ala Met Thr Ala Leu Asp Glu Ala Met Glu Arg Leu  
 305 310 315 320

Ala Arg Arg Ser Asp Ala Leu Ser Leu Glu Val Ala Leu Leu Glu Ala  
 325 330 335

Gly Arg Ala Leu Ala Ala Glu Ala Leu Pro Gln Pro Thr Gly Ala Pro  
 340 345 350

Ser Pro Glu Val Gly Pro Lys Pro Glu Ser Pro Pro Thr Pro Glu Pro  
 355 360 365

Pro Arg Pro Glu Glu Ala Pro Asp Leu Arg Glu Arg Trp Arg Ala Phe  
 370 375 380

Leu Glu Ala Leu Arg Pro Thr Leu Arg Ala Phe Val Arg Glu Ala Arg  
 385 390 395 400

Pro Glu Val Arg Glu Gly Gln Leu Cys Leu Ala Phe Pro Glu Asp Lys  
 405 410 415

Ala Phe His Tyr Arg Lys Ala Ser Glu Gln Lys Val Arg Leu Leu Pro  
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Gly Glu Lys Lys Lys Ala  
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<210> 6

<211> 32

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: primer

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